

1           55. The method of clam 54 wherein detecting the neural activity  
2 comprises taking functional MRI images of the brain and monitoring neural activity at  
3 the second location.

1           56. The method of claim 50 wherein the neural-function controls  
2 learning a task and the neural activity related to the neural function is expected to  
3 occur at the first location of the brain according to a known functional organization of  
4 the brain, and wherein identifying the stimulation site comprises detecting a change in  
5 the neural activity at the first location of the brain while the patient learns the task.

1           57. The method of clam 56 wherein detecting a change in the neural  
2 activity comprises taking functional MRI images of the brain while the patient learns  
3 the task.

1           58. The method of claim 50 wherein the neural-function controls  
2 learning a task and the neural activity related to the neural function is expected to  
3 occur at the first location of the brain according to a known functional organization of  
4 the brain, and wherein identifying the stimulation site comprises detecting a change in  
5 the neural activity at a second location different than the first location of the brain  
6 while the patient learns the task.

1           59. The method of clam 58 wherein detecting a change in the neural  
2 activity comprises taking functional MRI images of the brain while the patient learns  
3 the task.

1           60. The method of claim 50 wherein the first region of the brain is  
2 affected by a disease and neural activity related to the neural-function is expected to  
3 occur at the first location of the brain according to a known functional organization of

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4 the brain, and wherein identifying the stimulation site comprises detecting a change in  
5 neural activity adjacent to the first region.

1 61. The method of claim 50 wherein the first region of the brain is  
2 affected by a disease and neural activity related to the neural-function is expected to  
3 occur at the first location of the brain according to a known functional organization of  
4 the brain, and wherein identifying the stimulation site comprises detecting a change in  
5 neural activity related to the neural-function at a second location different than the first  
6 location.

1 62. The method of claim 50 wherein the first region of the brain is  
2 affected by brain damage and neural activity related to the neural-function is expected  
3 to occur at the first location of the brain according to a known functional organization  
4 of the brain, and wherein identifying the stimulation site comprises detecting a change  
5 in neural activity adjacent to the first region.

1 63. The method of claim 50 wherein the first region of the brain is  
2 affected by brain damage and neural activity related to the neural-function is expected  
3 to occur at the first location of the brain according to a known functional organization  
4 of the brain, and wherein identifying the stimulation site comprises detecting a change  
5 in neural activity related to the neural-function at a second location different than the  
6 first location.

1 64. The method of claim 50 wherein applying the electrical potential  
2 comprises inducing an increase in a resting membrane potential of neurons subject to  
3 the electrical potential.

1 65. The method of claim 64 wherein applying an electrical  
2 stimulation comprises providing an electrical potential between the first and second

3 electrodes that increases the resting membrane potential of a desired population of  
4 neurons at the stimulation site by 10%-95% of a voltage gap between the resting  
5 membrane potential and an action potential for the desired population of neurons.

1           66. The method of claim 64 wherein applying an electrical  
2 stimulation comprises providing an electrical potential between the first and second  
3 electrodes that increases the resting membrane potential of a desired population of  
4 neurons at the stimulation site by 10%-95% of a voltage gap between the resting  
5 membrane potential and an action potential for the desired population of neurons, and  
6 wherein the electrical potential is provided at a frequency of approximately 40-200 Hz.

1           67. The method of claim 64 wherein applying an electrical  
2 stimulation comprises providing an electrical potential between the first and second  
3 electrodes that increases the resting membrane potential of a desired population of  
4 neurons at the stimulation site by 10%-95% of a voltage gap between the resting  
5 membrane potential and an action potential for the desired population of neurons, and  
6 wherein the electrical potential is provided at a frequency of approximately 40-200 Hz  
7 and a pulse width of approximately 20-100 $\mu$ s.

1           68. The method of claim 64 wherein applying an electrical  
2 stimulation comprises providing an electrical potential between the first and second  
3 electrodes that increases the resting membrane potential of a desired population of  
4 neurons at the stimulation site by 60%-80% of a voltage gap between the resting  
5 membrane potential and an action potential for the desired population of neurons.

1           69. The method of claim 64 wherein applying an electrical  
2 stimulation comprises providing an electrical potential between the first and second  
3 electrodes that increases the resting membrane potential of a desired population of  
4 neurons at the stimulation site by 60%-80% of a voltage gap between the resting